

5 **METHOD OF IMMOBILIZING BIOLOGICALLY ACTIVE MOLECULES**
 FOR ASSAY PURPOSES IN A MICROFLUIDIC FORMAT

10 **ABSTRACT OF THE DISCLOSURE**

 The invention provides biological molecules entrapped within a sol-gel matrix
and incorporated into a microanalytical device for high throughput screening of samples.
The pore sizes of the matrix may be chosen to match the size of the entrapped biological
molecule or to correspond in size with the sample molecules to be analyzed. The sol-gel
15 may be formed into structures that can be incorporated into or onto the microanalytical
devices as microcolumns, microchannels, and microarrays. The sol-gel may incorporate
substituted silanes and thereby provide a hydrophobic or hydrophilic surface, thereby
providing the potential for use in microchromatography, microelectrophoresis or
combinations thereof on the microanalytical device. A preferred detection method of
20 samples is mass spectrometry.